U.S. FISH AND WILDLIFE SERVICE
SPECIES ASSESSMENT AND LISTING PRIORITY ASSIGNMENT FORM

SCIENTIFIC NAME: Eriogonum kelloggii

COMMON NAME: Red Mountain buckwheat

LEAD REGION: Region 1

INFORMATION CURRENT AS OF: November 3, 2005

STATUS/ACTION:

___ Species assessment - determined we do not have sufficient information on file to support a proposal to list the species and, therefore, it was not elevated to Candidate status
___ New candidate
_X_ Continuing candidate
___ Non-petitioned
_X_ Petitioned - Date petition received: May 11, 2004
(Center for Biological Diversity et al. 2004)
__ 90-day positive - FR date:
__ 12-month warranted but precluded - FR date:
__ Did the petition request a reclassification of a listed species?

FOR PETITIONED CANDIDATE SPECIES
a. Is listing warranted? Yes
b. To date, has publication of a proposal to list been precluded by other higher priority listing actions? Yes
c. If the answer to a. and b. is "yes", provide an explanation of why the action is precluded.

We find that the immediate issuance of a proposed rule and timely promulgation of a final rule for this species has been, for the preceding 12 months, and continues to be, precluded by higher priority listing actions (including candidate species with lower LPNs). During the past 12 months, most of our entire national listing budget has been consumed by work on various listing actions to comply with court orders and court-approved settlement agreements, meeting statutory deadlines for petition findings or listing determinations, emergency listing evaluations and determinations, and essential litigation-related, administrative, and program management tasks. We will continue to monitor the status of this species as new information becomes available. This review will determine if a change in status is warranted, including the need to make prompt use of emergency listing procedures. For information on listing actions taken over the past 12 months, see the discussion of "Progress on Revising the Lists," in the current CNOR which can be viewed on our Internet website (http://endangered.fws.gov/).

___ Listing priority change
Former LP: ___
New LP: ___

Date when the species first became a Candidate (as currently defined): _1975___

___ Candidate removal: Former LP: ___
___ A - Taxon is more abundant or widespread than previously believed or not subject to the degree of threats sufficient to warrant issuance of a proposed listing or continuance of candidate status.
___U – Taxon not subject to the degree of threats sufficient to warrant issuance of a proposed listing or continuance of candidate status due, in part or totally, to conservation efforts that remove or reduce the threats to the species.
___ F - Range is no longer a U.S. territory.
___ I - Insufficient information exists on biological vulnerability and threats to support listing.
___ M - Taxon mistakenly included in past notice of review.
___ N - Taxon may not meet the Act's definition of "species."
___ X - Taxon believed to be extinct.

ANIMAL/PLANT GROUP AND FAMILY: Flowering plants, Polygonaceae (Buckwheat Family)

HISTORICAL STATES/TERRITORIES/COUNTRIES OF OCCURRENCE:
Mendocino County, California

CURRENT STATES/ COUNTIES/TERRITORIES/COUNTRIES OF OCCURRENCE:
Mendocino County, California

LAND OWNERSHIP
Thirty eight of the 44 occupied polygons mapped on Red Mountain by Jennings (2003) are located on Bureau of Land Management (BLM) lands. The remaining polygons are located on lands owned by Coombs Tree Farm of Garberville, California. The single occurrence documented on Little Red Mountain (50 plants in 2003) is owned by the California Department of Fish and Game (CDFG)(Imper 2003). Proportional ownership is estimated as follows: Federal (BLM), 69 percent; State of California, 1 percent; and private, 30 percent.

LEAD REGION CONTACT: Diane Elam (Region 8) (916) 414-6464;
(email: diane_elam@fws.gov)

LEAD FIELD OFFICE CONTACT: Arcata Fish and Wildlife Office, David Imper (707) 822-7201; (email) david_imper@fws.gov

BIOLOGICAL INFORMATION:
Due to the remoteness of the majority of known habitat for this species, within and surrounding the Red Mountain Area of Critical Environmental Concern (ACEC), the BLM maintains the most up-to-date information regarding this species and its habitat. CDFG maintains the most up to date information pertaining to the Little Red Mountain site. We have reviewed our files, the California Natural Diversity Data Base (CDFG 2004), the online Inventory of Rare and Endangered Plants (California Native Plant Society [CNPS] 2005) and contacted the Arcata Office of BLM and various offices of CDFG as part of updating this candidate form.

Species Description
This perennial herb forms loose spreading mats 20-50 centimeters (cm) (8-17.5 inches [in]) in diameter. Leaves are clustered on low stems, leaf blades are 4-10 cm (1.7 -4 in) in length, and are oblanceolate, and silvery-silky, especially below. Blooms are ball-shaped, composed of several smaller flowers about 5 -7 millimeters (0.25 -0.37 in) in size and whitish to rose in color.

Taxonomy
Asa Gray (1870) described this taxon from specimens collected in 1869 by Dr. A. Kellogg and from the type locality at Red Mountain, Mendocino County, California. Gray is the most recent and accepted taxonomic write up for this species.

Habitat/Life History
This serpentine endemic is found in rocky barren, openings in lower montane coniferous forests between 580 and 1,250 meters (1,900 and 4,100 feet) in elevation (Jennings 2003).

Historical and Current Range/Distribution
This species appears to have always been rare, and is currently known to occupy 80 square meters (900 square feet) of habitat at Little Red Mountain, and an estimated 20 hectares (ha) (50 acres [ac]) of habitat scattered over 10.4 square kilometers (4 square miles) at Red Mountain, Mendocino County, California.

Population Estimates/Status
Jennings (2003) mapped the majority of Eriogonum kelloggii occurring within the Red Mountain ACEC, which is owned by the BLM, and a portion of the species occupying privately held lands at Red Mountain in 2004. Thirty-eight occupied polygons, encompassing less than 16 ha (40 ac), scattered over about 10.4 square kilometers (4.0 square miles) were mapped on BLM lands. Polygons ranged in size from less than 0.4 ha (1 ac) to nearly 4 ha (10 ac). Another six polygons encompassing an estimated 4 ha (10 ac) were mapped on private lands nearby. Jennings (2003) estimated a minimum total population of Eriogonum kelloggii observed in his survey effort at 6,500 plants. Based on a more accurate count of plants within one of his polygons and extrapolating to the entire occupied area, Jennings' data suggest the total population may range between 20,000 to 30,000 plants. The above estimates of occupied habitat and population do not include potential habitat located on the steep slope above Cedar Creek and on private lands located away from the access roads. The unsurveyed areas are not expected to contribute more than 10-20 percent to the estimate of total occupied habitat and population.

Staff from the U.S. Fish and Wildlife Service (USFWS) and CDFG relocated what is thought to be the historical site for Eriogonum kelloggii on Little Red Mountain in 2003 (Imper 2003). That site is owned by CDFG. A total of 50 plants were observed there. A search of suitable habitat elsewhere on the mountain found no additional plants.

Dr. Michael Baad monitored thirteen 5 square meter (16 square feet) permanent plots at three study sites on Red Mountain annually between 1987 and 1998, and again in 2002. Individual plants were counted, mapped, measured, and classified as to reproductive class. His research showed considerable annual variation in plant density and reproductive success, but no discernible long-term trends at two of the three study sites (Baad 2002). One study site exhibited a decline in plant density by 65 percent over the past 11 years, and a different study area exhibited a pronounced reduction in reproductive success since 1998. The latter study area is located adjacent to and within a stand of knobcone pine (Pinus attenuata) that burned approximately 40 years ago. The decline in reproductive success may be a result of progressive growth of trees and shrubs leading to canopy closure as part of the recovery from fire (Baad 2002).

From 1987 through 1998, the Red Mountain endemics located within the permanent study plots experienced little human impact (Baad 1998).

Virtually all of the historic occurrences mapped by Baad on BLM land in 1986 (CDFG 2004) were relocated by Jennings (2003). However, the low resolution of the 1986 mapping effort and the limited scope of the 2003 mapping effort prevented our making any conclusions regarding population trends.

THREATS:

A. The present or threatened destruction, modification, or curtailment of its habitat or range. The primary threat to this species is the potential for future mining activities. Although mining does not now occur in the species' habitat, potential future surface nickel, chromium, and cobalt mining threaten this species (Baad 1994; M. Finan, U.S. Army Corps of Engineers, Sacramento Office, pers. comm. 1994; Jennifer Wheeler, BLM, Arcata Field Office, pers. comm. 2001; Mary Ann Showers, CDFG, Sacramento Office, pers. comm. 2005). The extent of future mining will depend on the future economic feasibility and demand for minerals found in the area.

An estimated 25 and 35 percent of the occupied habitat for Eriogonum kelloggii is privately owned by mining interests. In addition, approximately 76 mining claims are held within the Red Mountain ACEC, covering the entire area occupied by Eriogonum kelloggii (Dan Averel, BLM Arcata Field Office, pers. comm. 2004). Two claimants hold the majority of claims. Designation as an ACEC merely requires BLM review and approval of a plan of operations for all mining activities (Whitcomb 1989). Although the ACEC was withdrawn from mineral materials sales in 1989, it remains open to entry for locatable or leasable minerals under the 1872 Mining Law (BLM 1995). It is not known if a valid mining claim is held covering the Little Red Mountain site, owned by the CDFG (Tina Fabula, CDFG, Yountville, pers. comm. 2004).

Most likely, any mining operation on Red Mountain or Little Red Mountain would be an open-face bench type that would involve removal and processing of the mineral-bearing ore which contains the nickel, chromium, and cobalt (BLM 1988). All vegetation and habitat for Eriogonum kelloggii would be removed during mining operations. Ore would be processed on public or adjacent private lands. Overburden and processed soil disposal areas would be needed, along with a transportation system, perhaps involving cable trams across Cedar Creek Canyon (BLM 1988). The holder of the mining claims could engage in a validation process of their mining claims and thereby be granted patent to the lands on Red Mountain. If the lands were to be patented into private ownership and mining commenced, neither the USFWS nor the BLM may offer any protection for the species beyond elevating the profile and plight of the plant species in an emergency listing.

Habitat modification as a result of natural successional changes in absence of fire also appears to be a primary threat to this species, at least in the long term. Baad recognized the threat from vegetation encroachment to at least 3 rare plants known from Red Mountain, including Eriogonum kelloggii, Sedum eastwoodiae (Red Mountain stonecrop) and Arabis mcdonaldiana (McDonald's rockcress), and he attributed suppressed reproductive output in Eriogonum kelloggii and Arabis mcdonaldiana at one site to ongoing conifer invasion following fire about 40 years ago (Baad 2002). The rate at which habitat becomes unsuitable without fire is not known. In general, habitat located on rocky ridge tops with little woody vegetation will be impacted at a slower rate than habitat located on deeper soils in more sheltered sites.

The small population of Eriogonum kelloggii located at Little Red Mountain is situated along the edges of an old mining access road. That population could be impacted by road maintenance or reconstruction (Clare Golec, CDFG, Ft. Bragg Office, pers. comm. 2005).

The genetic implications of habitat fragmentation, genetic isolation and declining effective population size are additional threats (Saunders et al. 1991; Meffe and Carroll 1997).

B. Overutilization for commercial, recreational, scientific, or educational purposes.

No threats are known at this time.

C. Disease or predation.

No threats are known at this time.

D. The inadequacy of existing regulatory mechanisms.

The State of California listed the Eriogonum kelloggii as endangered in 1982. The species is included on the CNPS's List 1B. As a State-listed species, Eriogonum kelloggii is subject to the provisions of the California Endangered Species Act (CESA) and California Native Plant Protection Act (NPPA). Where mining is proposed, the plant may also be covered under the Surface Mining and Reclamation Act and California Environmental Quality Act (CEQA). The

degree to which each of these acts, separately or in combination, would protect this species is complex and subject to legal interpretation. In particular, the NPPA contains exceptions to CESA which specifically cover mining assessment work. In general, existing State protections would emphasize mitigation as opposed to avoidance to avoid significant impacts. However, in this situation the species is confined to unique soils within a small geographic area, sits directly on top of the ore-bearing deposits, and is not known to occur on severely disturbed soils. In such a situation, the degree to which mitigation can substitute for avoiding the habitat is highly questionable. Eriogonum kelloggii is also listed as sensitive by the BLM, which would provide limited protection for that portion of the distribution located on BLM lands.

E. Other natural or manmade factors affecting its continued existence.

The small number of populations and individual plants make this species more vulnerable to random environmental events.

CONSERVATION MEASURES PLANNED OR IMPLEMENTED:
No conservation measures were implemented in 2005 for Eriogonum kelloggii. Previous conservation measures included initiation of the long term life history and population monitoring in 1987 (Baad 2002); field mapping of occupied habitat on public lands in 2003 (Jennings 2003); and general ongoing public outreach activities such as public field trips and academic visitation.

Designation of 6,173 acres of BLM property at Red Mountain as a wilderness study area (WSA) in 1979, and 6,895 acres as an ACEC/Research Natural Area (RNA) in 1984 has to some extent focused management concern and direction toward conservation of the unique botanical and soils values, old growth forest, raptor habitat and anadromous fisheries (BLM 1995, 1996). Annual visits are conducted by BLM staff in conjunction with the WSA status, to ensure that no new road construction occur (Jennifer Wheeler, BLM Arcata Field Office, pers. comm. 2005). Most, or all, of the occupied or suitable habitat for Eriogonum kelloggii in the vicinity of the Red Mountain ACEC was recommended for acquisition (willing landowners) in the Resource Management Plan (RMP) for the area (BLM 1995). The RMP also excludes livestock grazing and off-road vehicle use from the ACEC.

SUMMARY OF THREATS: (including reasons for addition or removal from candidacy, if appropriate)

Primary threats to this species include destruction of its habitat as a result of surface mining, and modification of its habitat by encroaching vegetation as a result of fire exclusion.

For species that are being removed from candidate status:
_____Is the removal based in whole or in part on one or more individual conservation efforts that you determined met the standards in the Policy for Evaluation of Conservation Efforts When Making Listing Decisions (PECE)?

RECOMMENDED CONSERVATION MEASURES:
Habitat occupied by Eriogonum kelloggii should be withdrawn from all minerals entry under the 1897 Mining Law.

Subject to landowner authorization, the extent of Eriogonum kelloggii occurrence on adjacent private property should be documented.

Conservation measures recommended for implementation in 2006 at Red Mountain ACEC, but without firm staff or funding commitment at this time, include:
1) Collect field data necessary to develop a baseline population estimate for the species.
2) Resample and review Baad's (2002) permanent monitoring plots to determine if they adequately address the long term threat from vegetation encroachment;
3) investigate the fire history within Eriogonum kelloggii habitat;
4) If warranted, begin agency coordination and fieldwork in preparation for experimental reintroduction of fire into Eriogonum kelloggii habitat.

LISTING PRIORITY

THREAT			
Magnitude	Immediacy	Taxonomy	Priority
High	Imminent	Monotypic genus	1
		Species	2
		Subspecies/population	3
	Non-imminent	Monotypic genus	4
		Species	**5***
		Subspecies/population	6
Moderate to Low	Imminent	Monotypic genus	7
		Species	8
		Subspecies/population	9
	Non-imminent	Monotypic genus	10
		Species	11
		Subspecies/population	12

Rationale for listing priority number:
Magnitude:
Magnitude of threat to Eriogonum kelloggii is rated high. The entire population, with the exception of the few plants located at Little Red Mountain, is either privately held or covered under existing mining claims. The Eriogonum kelloggii distribution is currently highly fragmented, consisting of 44 relatively small polygons scattered over 10.4 square kilometers (4 square miles). While some colonies or populations may persist if the area is mined, the increased fragmentation and reduction in overall population are potentially significant in

affecting population viability. Based on the observed, nearly complete affinity of this species with undisturbed soils, mining undoubtedly will render the affected habitat unsuitable for the species for a significant period.

Imminence:
Imminence of threat is rated non-imminent. There is no current mining activity affecting Eriogonum kelloggii or its habitat. Any proposed mining would be subject to an application process, during which BLM would treat this species as if it were currently federally listed, and request conferencing (optional) with the USFWS. The mining claim would also have to proceed through the validation process.

Without periodic fire affecting vegetation structure and composition within its habitat, we expect Eriogonum kelloggii will ultimately decline over much if not all of its habitat due to encroachment by shrubs and trees. The rate at which surrounding vegetation structure and composition, in absence of fire, will negatively affect Eriogonum kelloggii is unknown. Due to the slow growth rates typically exhibited on serpentine-derived soils, the rate at which habitat becomes unfavorable for Eriogonum kelloggii will likely be slow at least in portions of its distribution.

Yes Have you promptly reviewed all of the information received regarding the species for the purpose of determining whether emergency listing is needed?

Is Emergency Listing Warranted?
Emergency listing is not warranted at this time, based on the following: a lack of current mining activity, either on public or privately held lands in the Red Mountain area; and any mining proposed on BLM lands would be subject to conferencing (optional) with USFWS with regard to Eriogonum kelloggii and its habitat.

DESCRIPTION OF MONITORING
Both the Red Mountain and Little Red Mountain sites are remote, surrounded by private landowners, and require authorization for access from private parties. BLM and/or USFWS personnel generally visit the Red Mountain site on an annual basis to conduct a general reconnaissance and generally assess the status of the species. The Little Red Mountain site was only recently relocated. Since then, CDFG personnel have visited the site several times, but no formal monitoring of the Eriogonum kelloggii at Little Red Mountain is ongoing. The USFWS and BLM maintain routine contact regarding the Red Mountain site. BLM personnel are frequently in contact with the Coombs Tree Farm Company (private owner of all non-public owned Eriogonum kelloggii habitat), in conjunction with requesting access through their property to the Red Mountain ACEC.

The only past formal monitoring of this species was conducted by Dr. Michael Baad. This monitoring focused on the plant life history and site-specific trends in population over time. Monitoring has involved permanent plots located at three study sites within the Red Mountain ACEC, read annually between 1987 and 1998, and again in 2002. Individual plants were

counted, mapped, measured, and classified as to reproductive class (Baad 2002). This monitoring will be implemented periodically in the future at perhaps 3- or 4-year intervals, subject to available funding by both BLM and USFWS.

The majority of the distribution of Eriogonum kelloggii within the BLM Red Mountain ACEC, and on private lands immediately adjacent to the access road was mapped in 2003, to gather baseline data on the species' distribution and population (Jennings 2003). No accurate distribution maps or current population estimates existed prior to this survey. Limited abundance data were collected from two of the mapped polygons. The mapping effort was conducted to provide the basis for a more accurate baseline estimate of the population, to be conducted pending available funds and staffing.

Given the remote nature of Eriogonum kelloggii habitat, current low susceptibility to human impacts, and relatively stable nature of the habitat from an ecological standpoint, the current frequency of monitoring is considered adequate to detect any significant threats. However, the location of monitoring plots should be assessed to determine their adequacy for representing the variation in habitats and conditions across the Eriogonum kelloggii range, particularly with respect to susceptibility to habitat modification as a result of fire exclusion.

COORDINATION WITH STATES

Input regarding species status and agency coordination was requested from the State of California, Department of Fish and Game (Attn: Craig Martz, Redding Office; Karen Kovacs and Gordon Leppig, Eureka Office; Mary Ann Showers, Sacramento Office; Roxanne Bittman, California Natural Diversity Database, Sacramento; Clare Golec, Ft. Bragg Office) on October 21, 2005.

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APPROVAL/CONCURRENCE: Lead Regions must obtain written concurrence from all other Regions within the range of the species before recommending changes, including elevations or removals from candidate status and listing priority changes; the Regional Director must approve all such recommendations. The Director must concur on all resubmitted 12-month petition findings, additions or removal of species from candidate status, and listing priority changes.

Approve: /s/ Paul Henson April 26, 2006
Acting CNO Manager, Fish and Wildlife Service Date

Concur: August 23, 2006
Acting Director, Fish and Wildlife Service Date

Do not concur: _____
Director, Fish and Wildlife Service Date

Date of annual review: October 2005
Conducted by: David Imper